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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,588	09/15/2000	Fred Irwin	CITI0184	1954

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EXAMINER

BORLINGHAUS, JASON M

ART UNIT	PAPER NUMBER
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3628

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/662,588		IRWIN ET AL.	
	Examiner		Art Unit	
	Jason M. Borlinghaus		3628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/17/2005 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8 – 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmus (US Patent 4,674,044) in view of Schlidt (Schlidl, Herbert. *Turbo C/C++: The*

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Complete Reference. Osborne McGraw-Hill. Berkeley, CA. 1990. p. 13, 561 and 727 - 730).

Regarding Claim 8, Kalmus discloses a system comprising:

- a processor (CPU – see 10, figure 1) further comprising:
- a first component comprising functions for sending messages and receiving messages to the system (CPU – see 10, figure 1) on behalf of a customer (Brokerage House – see 27, figure 1). (“Input/output network 25 provides data communication with the various branch offices 27 of the brokerage house. Line 25 permits communication with either the branch order entry clerk or directly to the account executives at each branch.” – see col. 4, lines 41 – 45 - It is inherent that a component comprises the functions for sending messages and receiving messages to the system on behalf of a customer.);
- a second component comprising functions for controlling access to the system by the customer. (“The order data fields include ... customer identification (CUSTID)...” – see col. 5, lines 52 – 54 – It is inherent that a component comprises functions for controlling access to the system by the customer since the functioning of the system requires a valid customer identification); and
- a third component comprising functions for sending messages to and receiving messages from the first component and a trader (Trader – see 15, figure 1). (see 11, figure 1 - It is inherent that a component comprises

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functions for sending messages to and receiving messages from the first component and a trader.)

Kalmus does not teach a system comprising:

- a processor configured to dynamically create sets of class components to handle one or more transactions with each set of class components.

However, object-oriented programming and class-based programming are old and well known in the art for designing, modeling, building and developing software systems. As evidenced by Schildt who states that object-oriented programming and class-based programming, an object-based programming language, has been in use since 1980 ("In 1980, while working at Bell Laboratories at Murray Hill, New Jersey, Bjarne Stroustrup addressed this problem by adding several extensions to the C language. Initially, called 'C with Classes,' the name was changed to C++ in 1983." – see page 727).

Accordingly, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to allow for his trading system to be encoded or programmed in any computer language that the inventor desired, including object-oriented programming language or class-based programming language which were already in use at the time of invention.

Furthermore, an object-based programming language and a class-based programming language, which were both known at the time of the invention, would have been obvious choices by which to reinterpret Kalmus due to the numerous benefits of such programming languages – easy programming maintenance, easy to understand

and streamlined structure. As evidenced by Schildt who states, "Object-oriented programming allows you to easily decompose a problem into subgroups of related parts. Then you translate these subgroups into self-contained units called objects" (see page 729) and "Also, because C++ shares C's efficiency, high-performance systems software can be constructed using C++." (see page 728).

Regarding Claims 9 – 14, Kalmus discloses a system wherein:

- the third component operates in a synchronous (real-time) format. ("The market making system of the above-described invention has thus been shown to automatically accommodate a random, real time order flow for security purchases or sales." – see col. 10, lines 23 – 26);
- the third component operates in a asynchronous (time delay executability) format. ("Orders not qualified for execution are stored and re-examined from time to time for possible later executability." – see col. 10, lines 34 – 36); and
- components are configured to handle multiple customers at one time. ("While only one branch is shown in Figure 1, it is to be understood that a multiplicity of branches 27 are in data communication with processor 10." – see col. 4, lines 45 – 48 – It is inherent that the set of class components are configured to handle multiple customers at one time).
- components are configured to handle multiple transactions at one time. ("While only one branch is shown in Figure 1, it is to be understood that a

multiplicity of branches 27 are in data communication with processor 10.”

– see col. 4, lines 45 – 48 – It is inherent that the components are configured to handle multiple transactions at one time with multiple customers in data communication with the processor.).

Kalmus does not teach a system wherein:

- the set of class components are configured to handle multiple customers at one time;
- the set of class components are configured to handle a single customer at one time;
- the set of class components are configured to handle a single transaction at one time; and
- the set of class components are configured to handle multiple transactions at one time.

However, functionality can be deleted from Kalmus to reduce the its ability to handle multiple customers and multiple transactions at one time:

- to handle a single customer at one time; and
- to handle a single transaction at one time.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Kalmus by incorporating the ability to handle both multiple and single customers, and both multiple and single transactions, to allow for versatility in the operation and functioning of the system.

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Additionally, as discussed above in Claim 8 and is evidenced by Schildt, object-oriented programming and class-based programming are old and well known in the art for designing, modeling, building and developing software systems.

Accordingly, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to allow for his trading system to be encoded or programmed in any computer language that the inventor desired, including object-oriented programming language or class-based programming language which were already in use at the time of invention was made, to reap the benefits of that computer programming language, as discussed above.

Regarding Claim 15, Kalmus does not teach a system wherein:

- the processor creates sets of class components based on the number of transactions.

However, as discussed above in Claim 8 and is evidenced by Schildt, object-oriented programming and class-based programming are old and well known in the art for designing, modeling, building and developing software systems.

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to allow for his trading system to be encoded or programmed in any computer language that the inventor desired, including object-oriented programming language or class-based programming language which were already in use at the time of invention was made, to reap the benefits of that computer programming language, as discussed above.

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Additionally, it is old and well known in the art that software creates and assigns memory space (an object, a memory location, a file) to store customer information and customer transaction data during customer login and transaction execution. As evidenced by Schildt who states memory is allocated during transaction execution "In this method, storage for information is allocated from the free memory area as it is needed and returned to free memory when it has served its purpose...Because memory can be allocated for one purpose and freed when that use has ended, it is possible for another part of the program to use the same memory for something else at a different time." (see page 561).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to allow for the processor to create class components based on the number of transactions since, as evidenced by Schildt, memory space would need to be allocated based on the number of transactions to be executed by the system, as is standard in software programming.

Regarding Claim 16, further method claim would have been obvious from system claim rejected above, Claim 8, and is therefore rejected using the same art and rationale.

Regarding Claim 17, Kalmus does not teach a method wherein:

- each component is created in response to a customer accessing the system.

It is old and well known in the art that software creates and assigns memory space (an object, a memory location, a file) to store customer information and customer

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transaction data during customer login and transaction execution. As evidenced by Schildt who states memory is allocated during transaction execution "In this method, storage for information is allocated from the free memory area as it is needed and returned to free memory when it has served its purpose...Because memory can be allocated for one purpose and freed when that use has ended, it is possible for another part of the program to use the same memory for something else at a different time." (see page 561).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to create components in response to a customer accessing the system since, as evidenced by Schildt, memory space would need to be allocated based on system access by customers, as is standard in software programming.

Regarding Claim 18, Kalmus discloses a computer program comprising:

- at least one computer-readable medium. (It is inherent that the system would require software programming contained on a computer-readable medium to function); and
- a programming module stored on the at least one medium, and operable, upon access of a customer to trading services of the computer program product ("The order data fields include ... customer identification (CUSTID)..." – see col. 5, lines 52 – 54 – It is inherent that a valid customer identification is required to allow access to trading services);
- where created programming include at least one of:

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- an access control programming. (“The order data fields include ... customer identification (CUSTID)...” – see col. 5, lines 52 – 54 – It is inherent that an access control programming must exist in order to validate customer identification);
- a trading system communications programming. (see 11, 12, 22, 23, 25 and 26, figure 1 - It is inherent that a trading system communications programming must exist to manage communications for the trading system); and
- a translator programming (“...data input apparatus such as a keyboard...” – see col. 4, lines 9 – 10 – It is inherent that a translator programming must exist to convert customer input into executable transactions.)

Kalmus does not teach a computer program comprising:

- a class creation module stored on the at least one medium, and operable, upon access of a customer to trading services of the computer program product, to create at least one set of classes, each set comprising at least one class;
- where created classes include at least one of:
 - an access control class;
 - a trading system communications class; and
 - a translator class.

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However, as discussed above in Claim 8 and is evidenced by Schildt, object-oriented programming and class-based programming are old and well known in the art for designing, modeling, building and developing software systems.

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to allow for his trading system to be encoded or programmed in any computer language that the inventor desired, including object-oriented programming language or class-based programming language which were already in use at the time of invention was made, to reap the benefits of that computer programming language, as discussed above.

Regarding Claims 19 – 20, further computer program claims would have been obvious from system claim rejected above, Claims 13- 14, and are therefore rejected using the same art and rationale.

Regarding Claim 21, Kalmus does not teach a computer program where:

- each class being an object linking and embedded class type.

However, as discussed above in Claim 8 and is evidenced by Schildt, object-oriented programming and class-based programming are old and well known in the art for designing, modeling, building and developing software systems. Furthermore, object-linking and embedded class types are standard in object-oriented programming and class-based programming languages. As evidenced by Schildt that discusses object linking by stating “Later the linker combines the code you wrote with the object code already found in the standard library. This process is called linking.” (see page 13).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified Kalmus to allow for his trading system to be encoded or programmed in any computer language that the inventor desired, including object-oriented programming language or class-based programming language which were already in use at the time of invention was made, and utilizing all techniques commonly employed by that programming language, to reap the benefits of that computer programming language, as discussed above.

Regarding Claim 22, further computer program claims would have been obvious from a subsection of the program claim rejected above, Claim 18, and is therefore rejected using the same art and rationale.

Regarding Claim 23, further method claim would have been obvious from a subsection of the program claim rejected above, Claim 18, and is therefore rejected using the same art and rationale.

Regarding Claims 24 - 25, further method claims would have been obvious from system claim rejected above, Claims 13- 14, and are therefore rejected using the same art and rationale.

Regarding Claim 26, further method claim would have been obvious from computer claim rejected above, Claim 21, and is therefore rejected using the same art and rationale.

Regarding Claim 27, further method claim would have been obvious from a subsection of the program claim rejected above, Claim 18, and is therefore rejected using the same art and rationale.

Response to Arguments

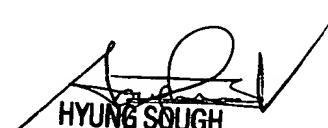
Applicant's arguments with respect to Claim 8 - 27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Borlinghaus whose telephone number is (571) 272-6924. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on (571) 272-6799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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